The opinion in support of the decision being entered today is not binding precedent of the Board.

Paper 15

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

J. R. JOCELYN **PARÉ**,

Junior Party,
(Patent 5,884,417),

v.

PHILIPPE **MENGAL** and BERNARD MOMPON,

Senior Party,
(Application 09/102,788).

Patent Interference No. 104,692

Before: SCHAFER, LEE, and SPIEGEL, Administrative Patent Judges.

SCHAFER, Administrative Patent Judge.

**DECISION ON PRELIMINARY MOTIONS,
FINAL JUDGMENT AND ORDER**

I. The Interference

A. Background

This interference is between Patent 5,884,417 issued to Paré and Application 09/102,788 filed by Mengal. A schedule was set for filing preliminary statements, preliminary motions, oppositions and replies. Paper 20. The schedule included times for cross-examining witnesses. Each party has filed preliminary motions. No hearing on motions was requested.

Paré has filed a preliminary motion asserting that Mengal's involved claims are unpatentable. Paper 40. We deny this motion. Paré has also filed three motions requesting the benefit of the filing dates of two earlier U.S. applications and an earlier Canadian application. Papers 41-43. We deny these motions also.

The parties have also filed preliminary statements. Paré's preliminary statement relies upon the benefit dates of the earlier U.S. and Canadian applications. Paper 32. Paré does not otherwise allege a date of invention earlier than the date accorded to Mengal. Since we have denied Paré's motions for benefit, it is appropriate to award judgment on priority against Paré. In view of the award of priority against Paré, it is unnecessary to decide Mengal's preliminary motions.

B. Findings of Fact[1]

1. The Parties

F 1. Paré is involved based upon Patent 5,884,417.

F 2. Patent 5, 884,417 issued to J. R. Jocelyn Paré (Paré) based upon Application 08/927,581, filed 11 September 1997.

F 3. The real party in interest of the Paré patent is said to be Her Majesty the Queen, in Right of Canada, as represented by the Minister of Environment. Paper 4.

F 4. Mengal is involved based upon Application 09/102,788, filed 23 June 1998 in the names of Philippe Mengal and Bernard Mompon.

F 5. The real party in interest of the Mengal application is said to be Archimex, a corporation of France located in Vannes Cedex, France. Paper 9.

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[1] The findings herein are supported by a preponderance of the evidence. Additional findings may be made in the Analysis portions of this opinion.

F 6. The Notice Declaring Interference accorded Paré the benefit of Application 08/653,553, filed 24 May 1996. Paper 1.

F 7. Mengal was accorded the benefit of Application 08/553,621, filed 28 November 1995. Paper 1.

F 8. In view of the earlier effective filing date, Mengal is the senior party.

F 9. The sole Count of this interference is the disjunction of Paré's Claims 1 and 10 and Mengal's Claims 1, 14, 20 and 29:

> Count 1
>
> Claim 1 or Claim 10 of the Paré Patent 5,884,417 or
>
> Claim 1 or Claim 14 or Claim 20 or Claim 29 of Mengal Application 09/102,788.

Paper 1, p. 5.

F 10. The claims of the parties which correspond to Count 1 are:

Paré:	1-15
Mengal:	1-5, 8, 9, 11, 14-21, 23-32

Paper 1, p. 5.

F 11. The claims of the parties which do <u>not</u> correspond to Count 1, and therefore are not involved in the interference, are:

Paré:	None
Mengal:	None

Paper 1, p. 5.

2. The Subject Matter of the Interference

F 12. The common inventive subject matter of the parties relates to methods and corresponding apparatus for microwave extraction of a desired product from biological materials.

F 13. The biological material is subject to microwave energy to heat and volatilize the desired natural product.

F 14. During microwave irradiation, the biological material is subject to cyclically and intermittently reduced pressure.

F 15. The volatilizable component is then separated to obtain the desired natural product.

F 16. Paré's claims 1 and 10 are representative of the parties' subject matter as claimed by Paré (paragraphing added):

1. In a method for the microwave extraction
of at least one natural product
from a biological material,
said method consisting in:
placing said biological material in an enclosure
without any solvent,
making said biological material present in said enclosure undergo microwave irradiation
in order to prompt the evaporation of at least a part of
the water contained in said biological material,
so as to enable the release of at least a part of said natural product,
separating the residual biological material from the extracted natural product,
the improvement wherein said method includes the steps of
cyclically intermittently applying reduced pressure
within said enclosure
during said step for the application of microwaves,
heating said enclosure
during at least the essential part of said step for the application of microwaves,
the combination of said steps for the application of the microwaves, the application of reduced pressure within the enclosure and the heating of the enclosure permitting the volatilization of said natural product from said biological material.

10. A method of microwave extraction
of at least a natural product
from a biological material containing volatilizable components,
comprising
providing a matrix of biological material
having volatilizable components dispersed therein,
treating said matrix with microwave energy
to effect volatilization of at least one of the volatilizable components from the biological material,
cyclically intermittently applying reduced pressure during the microwave treatment, and
separating at least one volatilized component

to obtain at least one natural product from the biological material.

Paper 6, attachment p. 1-2.

F 17. Mengal's Claim 20 is representative of the parties' invention as claimed by Mengal (paragraphing added):

> 20. A method of separating a natural product from a biological material, the method comprising:
>
> placing the biological material in an enclosure,
>
> the biological material containing water,
>
> the enclosure essentially free of liquid water other than the water contained in the biological material, and
>
> the enclosure free of organic solvent;
>
> releasing at least part of the natural product from the biological material
>
> by applying microwave radiation to the biological material,
>
> the microwave radiation effective to
>
> evaporate at least part of the water contained in the biological material to form water vapor and
>
> the microwave radiation effective to split the cellular structure of the biological material;
>
> intermittently applying reduced pressure within the enclosure
>
> during the application of microwave radiation
>
> to further split the cellular structure of the biological material induced by application of the microwave radiation;
>
> hydrodistilling the natural product
>
> by conveying
>
> the natural product and
>
> the water vapor coming from the biological material
>
> as an azeotropic mixture; and
>
> separating the natural product from the azeotropic mixture.

Paper 7, pp. 5-6.

3. Paré's Preliminary Statement

F 18. Paré's preliminary statement relies solely on the filing dates of three earlier applications for priority – U.S. Applications 08/327,638 and 08/012,475; and a Canadian Application which is said to have become Canada Patent 2,060,931. Paper 32.

II. Paré's Preliminary Motions

A. Paré's Motion Asserting the Unpatentability of Mengal's Claims

1. Findings of Fact

F 19. Paré asserts that Mengal's involved claims are unpatentable under 35 U.S.C. § 103(a) over the combination of either of U.S. Patent 5,519,947 (P. Ex.[2] 2001) or U.S. Patent 5,377,426 (P. Ex. 2002) combined with a publication by Ganzler et al. (P. Ex. 2003) and U.S. Patent 4,882,851 to Wennerstrum (P. Ex. 2004). Paper 40.

F 20. U.S. Patents 5,519,947 and 5,377,426 each issued in the name of J. R. Jocelyn Paré, the junior party.

a. Mengal's Claimed Subject Matter

F 21. All of Mengal's involved claims require placing a biological material into a container and subjecting the material to microwaves in order to extract a natural product. Paper 7, pp. 2-9.

F 22. The microwaves are said to cause the evaporation of water in the biological material resulting in the hydrodistillation of the desired product. E.g., Paper 7, Claim 20, pp. 5-6.

F 23. Mengal's claims also include either or both of two limitations relevant to Paré's motion: 1) the intermittent application of vacuum or reduced pressure (Mengal Claims 1-5, 8, 9, 11, and 14-21, 23-30 and 32) and 2) the recovery of the natural product and water in the form of an azeotropic mixture and that the separation of the natural product from the azeotrope (Mengal Claims 20, 21, and 23-32). Paper 7, pp. 2-9.

F 24. Mengal's Claim 20 is representative in having both limitations and is reproduced in ¶ F 15, above.

b. The Cited Prior Art

1) U.S. Patent 5,377,426 (Paré 426)

F 25. Paré 426 relates to microwave assisted generation of volatile components from a variety of materials. P. Ex. 2002, col. 1, ll. 7-9.

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[2] "P. Ex." means Paré Exhibit.

F 26. Paré 426 says that there is a need for a method of enhancing the volatility of the volatilizable substances and for selectively separating the volatile component. P. Ex. 2002, col. 3, ll. 34-47.

F 27. Paré 426 addresses the volatility problem by subjecting the substance to microwave radiation to enhance the volatility of the desired substance. P. Ex. 2002, col. 2, ll. 13-23.

F 28. Paré 426 describes a process in which a material containing the volatile component is placed in a container which is then sealed with a selective semipermeable membrane, microwaves are applied to effect volatilization and the desired volatile components are separated by passing them through a semi-permeable membrane. P. Ex. 2002, col. 3, ll. 43-58.

F 29. The volatilization procedure is said to be preferably performed in a sealed container. P. Ex. 2002, col. 2, ll. 23-27.

F 30. Paré 426 says the semipermeable membrane separates the volatile components from the contents of the container. P. Ex. 2002, col. 6, ll. 21-23.

F 31. Paré 426 also describes the use of a sorbent to absorb and separate the volatile components released by the application of microwaves. P. Ex. 2002, col. 4, ll. 37-40.

F 32. The particular sorbent is said to be dependent upon the particular volatile material of interest. P. Ex. 2002, col. 8, ll. 25-28.

F 33. Paré 426 notes that using the microwave techniques of the invention, volatile components for a variety of uses may be generated more easily with greater efficiency while allowing for less error and contamination. P. Ex. 2002, col. 2, ll. 13-22.

F 34. Example 2 of Paré 426 states, in relevant part:

> Fresh sage, of 80% moisture content, obtained from Saint-Jean-sur-Richelieu, Quebec, Canada, was chopped coarsely into pieces and subjected to conventional purge and trap analysis as well as to conventional headspace analysis. A portion of the same material was inserted into a container. The container was sealed by a cover through which an orifice had been made. A commercially available sorbent, in an appropriate container, was fitted from the inside of the container to the orifice thus creating an hermetic seal. The container and its contents were then treated by exposure to microwave radiation for 90 seconds so as to severely disrupt the equilibrium that existed between the solid plant material and the gases around it. The sorbent was then eluted and the eluate analyzed by gas chromatography. The results of the

analysis evidenced the presence of volatile terpenoids as well as less volatile ones.

* * * * *

It will be evident to those skilled in the art that the choice of sorbent is dependent upon the nature of the volatiles of interest (in the present example, a silica sorbent was appropriate). Direct injection of the volatiles without the use of any trap of any kind (cold or sorbent) is possible by the use of this invention because of the short sampling duration and because of the relatively small volume of sampling necessary. Purge and trap would not allow such a direct injection without a cold trap of kind, or of a sorbent. The use of this invention, in this particular example, showed that a purge and trap analysis can be performed more rapidly, with less operations (hence reduced risks of sample loss or sample degradation), at a much reduced cost and with less energy than conventional technology. Again, the use of this invention requires less intricate equipment occupying a much reduced space and obtainable at a much reduced capital cost.

P. Ex. 2002, col. 7, l. 66 - col. 8, l. 42.

F 35. Paré 426 does not expressly describe intermittently applying vacuum or reduced pressure during the exposure to microwaves.

F 36. Paré 426 does not expressly describe hydrodistilling the natural product by conveying the natural product and water as an azeotropic mixture and separating the natural product from the azeotrope.

2) U.S. Patent 5,519,947 (Paré 947)

F 37. Paré 947 issued from an application said to be a continuation-in-part of the application that issued as Paré 426. P. Ex. 2001, col. 1, ll. 5-6..

F 38. Paré 947 relates to microwave assisted generation of volatile components from a variety of materials. P. Ex. 2001, col. 1, ll. 10-12.

F 39. Paré 947 says that there is a need for a method of enhancing the volatility of the volatilizable substances and for selectively separating the volatile component. P. Ex. 2001, col. 2, ll. 1-15.

F 40. Paré 947 notes that using the microwave techniques of the invention, volatile components for a variety of uses may be generated more easily with greater efficiency while allowing for less error and contamination. P. Ex. 2001, col. 2, ll. 17-20.

F 41. Paré 947 says the volatilization procedure is preferably performed in a sealed container. P. Ex. 2001, col. 2, ll. 25-29.

F 42. Paré 947 describes a process in which a material containing the volatile component is placed in a container which is then sealed with a selective semipermeable membrane, microwaves are applied to effect volatilization and the desired volatile components separated by passing them through a semi-permeable membrane. P. Ex. 2001, col. 3, ll. 36-50.

F 43. Paré 947 describes the use of a semipermeable membrane to separate the volatile components from the contents of the container. P. Ex. 2001, col. 6, ll. 21-23.

F 44. Paré 947 also describes the use of a sorbent to absorb and separate the volatile components released by the application of microwaves. P. Ex. 2001, col. 4, ll. 62-64; col. 8, ll. 4-11.

F 45. The particular sorbent is said to be dependent upon the particular volatile material of interest. P. Ex. 2001, col. 8, ll. 22-25.

F 46. Paré 947 also describes placing samples into sealed headspace vials and applying microwave energy. E.g., P. Ex. 2001, col. 7, ll. 31-51; col. 8, ll. 41-63.

F 47. Paré 947 says that the microwave power applied to a sample in a closed container "was kept low to minimize the over pressurizing of the headspace vials and the potential for losses due to leaks or the potential for explosion." P. Ex. 2001, col. 10, ll. 7-9; col. 12, ll. 12-14.

F 48. Example 2 of Paré 947 is identical to Example 2 of Paré 426 reproduced above.

F 49. Paré 947 does not expressly describe intermittently applying vacuum or reduced pressure during the exposure to microwaves.

F 50. Paré 947 does not expressly describe hydrodistilling the natural product by conveying the natural product and water as an azeotropic mixture and separating the natural product from the azeotrope.

3) The Ganzler Publication (Ganzler)

F 51. The Ganzler publication relates to a method of preparing samples for chromatography employing microwave radiation. P. Ex. 2003, p. 299, Summary.

F 52. According to the publication, the samples to be studied are ground and mixed with an appropriate solvent. P. Ex. 2003, p. 299, Summary.

F 53. The mixture was said to be placed in sealed vials and repeatedly subject to irradiation for thirty seconds without allowing the mixture to boil and cooling to room temperature. P. Ex. 2003, p. 301.

F 54. The microwaved mixture was then centrifuged to separate the liquids and solids. P. Ex. 2003, p. 299, Summary.

F 55. The liquid was injected into a chromatographic column and the results compared with the results of conventional (non-microwave) techniques. P. Ex. 2003, pp. 301-305.

F 56. The authors conclude that microwave assisted extraction was more effective than the conventional methods and resulted in savings of time an energy. P. Ex. 2002, p. 305.

F 57. Ganzler does not expressly disclose intermittently applying reduced pressure.

4) The Wennerstrum Patent (Wennerstrum)

F 58. The Wennerstrum Patent relates to a method and apparatus for the batch drying using a microwave vacuum system. P. Ex. 2004, col. 1, ll. 7-13.

F 59. Wennerstrum teaches a method including the steps of placing the product to be dried in a container, placing the container and product into a chamber, pulling a vacuum in the chamber and applying microwaves to the product until drying is completed. P. Ex. 2004, col. 13, ll. 11-38.

F 60. The vacuum in the chamber is said to be maintained at a constant reduced pressure using a dual valve or a diaphragm system. P. Ex. 2004, col. 7, ll. 42-68.

F 61. The valves are operated so as to consistently maintain the desired level of vacuum in the chamber. P. Ex. 2004, col. 7, ll. 42-68.

F 62. Wennerstrum does not expressly disclose intermittent application of reduced pressure.

c. Paré's Position on Intermittent Application of Reduced Pressure

F 63. Paré argues that intermittently applying reduced pressure or vacuum is inherent in the teachings of Example 2 of the Paré patents and is also inherent in the Ganzler and Wennerstrum disclosures. Paper 40, p. 9.

F 64. Paré asserts that both Paré patents and Ganzler employ "conventional microwave ovens" to provide microwaves. Paper 40, p. 20-21.

F 65. Paré asserts that it is well known that conventional microwave ovens supply microwaves in pulses, i.e. in repeated on-cycles and off-cycles. Paper 40, p. 20.

F 66. Paré argues that the Paré patents and Ganzler teach treating samples in sealed containers with alternating periods of microwave exposure and non-exposure. Paper 40, pp. 20-21.

F 67. The alternating periods of exposure and non-exposure are argued to result in alternating periods of heating and cooling. Paper 40, pp. 20-21.

F 68. Paré then asserts that the "ideal gas equation" predicts that the pressure in the containers described in the Paré patents and Ganzler will increase due to the heating and decrease during cooling when the heat is removed. Paper 40, p. 20.

F 69. The ideal gas equation may be represented by the formula

$$PV=nRT$$

where P represents gas pressure, V represents the volume of the gas, n represents the amount –the number of moles– of gas, R is the universal gas constant and T is the absolute temperature of the gas.

F 70. The ideal gas equation predicts that for ideal gas systems that if the volume and the amount of an ideal gas is held constant –as would be the case in a sealed container– the pressure of the ideal gas will increase proportionally to an increase in temperature of the gas.

F 71. With respect to the Paré patents, Paré specifically argues:

> Both Paré '426 or Paré '947 employ conventional microwave ovens to supply microwave energy to release volatiles in fresh sage in a closed container (Example 2). As is well known in the art, conventional microwave ovens supply microwave energy in pulses (i.e., effectivity an on-off cycle that is repeated throughout the treatment period). During the "on-cycle" of the microwave energy, the temperatures of both the contents in the container and the container itself will rise. During the "off-cycle," the temperatures will, of course, fall since no heating energy will be supplied to the container or its contents. One of ordinary skill in the art, using the well known ideal gas equation (Whitten et al.), namely
>
> $$PV = nRT,$$
>
> will know that as the temperature of the contents and container are increased during the "on cycle," the pressure must increase since the volume and number of moles remain essentially constant. Likewise, one of ordinary skill in the art will know that as the temperature of the contents and the container fall during the "off-cycle," the pressure must also fall. Thus, the contents and the container are exposed to intermittently applied reduced pressure within the enclosure during the application of microwave energy.

Paper 40, p. 20.

F 72. Paré also relies on the Ganzler publication's description of repeated cycles of microwave heating of sealed containers followed by cooling to room temperature as inherently describing the intermitted application of reduced pressure. Paper 40, p. 21.

F 73. According to Paré, "[o]ne having ordinary skill in the art, again applying the ideal gas equation, would realize that pressure will be cycled up and down during this operation, thereby supplying the intermittently applied reduced pressure." Paper 40, p. 21.

F 74. Paré asserts that the Wennerstrum patent also inherently discloses intermittent application of reduced pressure. Paper 40, pp. 20-21.

F 75. Paré argues that Wennerstrum teaches maintaining a constant vacuum pressure in a microwave drying process by opening and closing a small valve connected to a vacuum. Paper 40, pp. 20-21.

F 76. According to Paré, the opening and closing of the valve results in the application of intermittent reduced pressure. Paper 40, pp. 20-21.

d. Inherency of the Intermittent Application of Reduced Pressure

1) The Paré Patents

F 77. Example 2 of Paré 426 and of Paré 947 does not expressly describe "intermittently applying a vacuum to the biological material" or "intermittently applying reduced pressure."

F 78. The remaining portions of Paré 426 or 947 do not expressly describe "intermittently applying a vacuum" or "intermittently applying reduced pressure."

F 79. Neither Paré 426 nor Par 947 mention the use of vacuum or reduced pressure generally in the specification or specifically in relation to separating volatile components.

F 80. Neither Example 2 of Paré 426 nor Example 2 of Paré 947 expressly describe the source of the microwaves.

F 81. Neither Example 2 of Paré 426 nor Example 2 of Paré 947 expressly describe the use of a microwave oven.

F 82. Paré 426 does not include the phrase "microwave oven."

F 83. Paré 426 refers only to a "microwave applicator" as the source of microwave energy. P. Ex. 2002, col. 2, ll. 13-22; col. 3, l. 66 - col. 4, l. 33.

F 84. Paré 947 refers to a "microwave oven" and "microwave applicator" as sources of microwave energy. P. Ex. 2001, Example 5, col. 10, ll. 4-6 and the second Example 4; col. 12, ll. 10-12.

F 85. Neither Paré 426 nor Paré 947 include the phrase "conventional microwave oven."

F 86. Paré has not presented any evidence explaining how a person having ordinary skill in the microwave extraction art would understand the disclosures of the Paré patents.

F 87. Paré has not presented any evidence explaining the meaning a person having ordinary skill in the microwave extraction art would give to "microwave applicator" as that phrase is used in Paré 426.

F 88. Paré has not presented any evidence explaining the meaning a person having ordinary skill in the microwave extraction art would give to "microwave applicator" and "microwave oven" as those phrases are used in Paré 947.

F 89. Paré has not presented any evidence showing the meaning of a "conventional microwave oven" to a person having ordinary skill in the microwave extraction art.

F 90. Neither Paré 426 nor Paré 947 have been shown to inherently disclose the use of a conventional microwave oven.

F 91. Neither Paré 426 nor Paré 947 have been shown to inherently describe applying microwaves in pulses.

F 92. Paré has not provide evidence showing that the ideal gas equation is applicable to predict the behavior of systems including non-gaseous phases.

F 93. Paré has not provided evidence showing the ideal gas equation is applicable to systems including a change of state from solid or liquid to gas.

F 94. Paré has not provided evidence that the ideal gas equation is applicable to predict the behavior of the mixture of gases in the sealed-containers described by the Paré patents.

F 95. Neither Paré 426 nor Paré 947 has been shown to inherently describe the intermittent application of reduced pressure during microwave treatment.

2) The Ganzler Publication

F 96. The Ganzler publication does not expressly describe "intermittently applying a vacuum to the biological material" or "intermittently applying reduced pressure."

F 97. The Ganzler publication does not mention the use of a vacuum or reduced pressure in preparing chromatography samples.

F 98. Paré has not provided any evidence explaining the content of the Ganzler publication from the perspective of a person having ordinary skill in the microwave extraction art.

F 99. Paré has not provided any evidence showing the ideal gas equation applies to the complex closed system described by Ganzler.

F 100. The Ganzler publication has not been shown to inherently describe applying vacuum or reduced pressure during microwave treatment.

3) The Wennerstrum Patent

F 101. The Wennerstrum patent does not expressly describe "intermittently applying a vacuum to the biological material" or "intermittently applying reduced pressure."

F 102. Paré has not provided any testimony or other evidence explaining how the Wennerstrum patent would be understood by a person having ordinary skill in the microwave extraction art.

F 103. Paré has not provided any evidence showing that one having ordinary skill in the art would understand Wennerstrum's description of maintaining a "constant reduced pressure" to necessarily describe "intermittently applying reduced pressure" or "intermittently applying vacuum."

F 104. The Wennerstrum patent has not been shown to inherently describe intermittently applying reduced pressure or vacuum.

e. Conveying an Azeotropic Mixture and Separation from the Mixture

F 105. With respect to the limitation requiring conveying an azeotropic mixture including the natural product and separating the product from the azeotrope, Paré argues:

> One of ordinary skill in the art would realize that the formation of an azeotropic mixture will depend on the inherent nature or ability of the specific natural product released to form an azeotropic mixture with water . . . .

> One of ordinary skill in the art would consider this as part of a standard separation method for azeotropic mixtures; once the natural product is collected, one of ordinary skill in the art would know of a number of techniques to separate the product from the mixture, including azeotropic mixtures.

Paper 40, p.14, p. 18, p. 19.

F 106. Paré has not identified any evidence relating to the use of azeotropic mixtures in microwave extractions.

2. Analysis

Paré's preliminary motion alleges that all of Mengal's involved claims are unpatentable under 35 U.S.C. § 103(a) over the teachings of either of two patents issued to Paré –U.S. Patent 5,519,947 (947) and U.S. Patent 5,377,426 (426)–, in combination with the teachings of a publication by Ganzler et al (Ganzler) and U.S. Patent 4,882,851 (Wennerstrum). Paper 40, p. 1.

We deny the motion.

Mengal's claims relate to methods and apparatus the for extracting products from biological materials. Mengal's claims require placing the biological material into a container and subjecting the materials to microwaves. The application of microwaves is said to result in the hydro-distillation of the desired product due to the evaporation of water present in the sample. The residual material is then separated from the desired product. Mengal's claim 20 is representative:

> 20. A method of separating a natural product from a biological material, the method comprising:
>
> placing the biological material in an enclosure,
>
> the biological material containing water,
>
> the enclosure essentially free of liquid water other than the water contained in the biological material, and
>
> the enclosure free of organic solvent;
>
> releasing at least part of the natural product from the biological material
>
> by applying microwave radiation to the biological material,
>
> the microwave radiation effective to
>
> evaporate at least part of the water contained in the biological material to form water vapor and

the microwave radiation effective to split the cellular structure of the biological material;

intermittently applying reduced pressure within the enclosure during the application of microwave radiation to further split the cellular structure of the biological material induced by application of the microwave radiation;

hydrodistilling the natural product by conveying the natural product and the water vapor coming from the biological material as an azeotropic mixture; and

separating the natural product from the azeotropic mixture.

At least two limitations present in Mengal's claims are not expressly taught by the Paré patents. At least one of these limitations is present in each of Mengal's claims. The first requires the intermittent application of reduced pressure (or vacuum) during the exposure to microwaves. Mengal Claims 1-5, 8, 9, 11, 14-21, 23-30 and 32 include this limitation. The other limitation specifies conveying the natural product and water volatilized by the application of microwaves as an azeotropic mixture and separating the product form the azeotrope. This limitation is present in Mengal Claims 20, 21, and 23-32.

a. Intermittent Application of Reduced Pressure

With respect to the intermittent application of vacuum or reduced pressure during the application of microwaves, Paré argues that this limitation is inherent in Example 2 of both Paré patents.

1) Inherency

Inherency is a question of fact. In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997); In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). To establish inherency, extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the disclosure and that it would be so recognized by persons of ordinary skill. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268-69, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). Proof of inherency requires evidence that the "necessary and only reasonable construction to be given the disclosure by one skilled in the art is one which will lend clear support to . . . [the]

positive limitation. . . ." Kennecott Corp. v. Kyocera International, Inc., 835 F.2d 1419, 1423, 5 USPQ2d 1194, 1198 (Fed. Cir. 1987) quoting Langer v. Kaufman, 465 F.2d 915, 918, 175 USPQ 172, 174 (CCPA 1972) quoting Binstead v. Littmann, 242 F.2d 766, 770, 113 USPQ 279, 282 (CCPA 1957). In Kennecott, 835 F.2d at 1423, 5 USPQ2d at 1198, the court noted:

> The court has generally applied this standard of the "necessary and only reasonable construction" as a basis for determining whether an application could, on the basis of an inherent property, support a limitation in an interference count. [Citations omitted.]

The "necessary and only" requirement precludes reliance on mere probabilities or possibilities. As noted by the CCPA:

> Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. [Citations omitted.] If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient.

In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981), quoting, Hansgirg v. Kemmer, 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939). Thus, it is not sufficient that a person following the disclosure might obtain the result set forth; it must inevitably happen. Dreyfus v. Sternau, 357 F.2d 411, 415, 149 USPQ 63, 66 (CCPA 1966) (emphasis added); Crome v. Morrogh, 239 F.2d 390, 392, 112 USPQ 49, 50 (CCPA 1956).

2) Inherency of the Intermittent Application of Reduced Pressure

Paré argues:

> Both Paré '426 or Paré '947 employ conventional microwave ovens to supply microwave energy to release volatiles in fresh sage in a closed container (Example 2). As is well known in the art, conventional microwave ovens supply microwave energy in pulses (i.e., effectivity an on-off cycle that is repeated throughout the treatment period). During the "on-cycle" of the microwave energy, the temperatures of both the contents in the container and the container itself will rise. During the "off-cycle," the temperatures will, of course, fall since no heating energy will be supplied to the container or its contents. One of ordinary skill in the art, using the well known ideal gas equation (Whitten et al.), namely

$$PV = nRT,$$

> will know that as the temperature of the contents and container are increased during the "on cycle," the pressure must increase since the volume and number of moles remain essentially constant. Likewise, one of ordinary skill in the art will know that as the temperature of the contents and the container fall during the "off-cycle," the pressure must also fall. Thus, the contents and the container are exposed to intermittently applied reduced pressure within the enclosure during the application of microwave energy.

Paper 40, p. 20.

With respect to the Paré patents, Paré's inherency argument employs the following logic: (1) a person having ordinary skill in the art would recognize that the "microwave oven" and the "microwave applicator" mentioned respectively in Applications 08/327,638 and 08/012,475 is a "conventional microwave oven"; (2) conventional microwave ovens supply microwave energy in pulses, i.e., in on- and off-cycles during treatment; (3) the pulses will result in heating of the sample and the surrounding gas during the on-cycle and the sample and the surrounding gas will cool during the off-cycle; (4) the ideal gas equation predicts that during the on-cycle the gas pressure will rise due to the heating and during the off-cycle the pressure will fall as the gas cools; (5) therefore, the contents of the container are exposed to intermittently applied reduced pressure during the application of microwave energy. Paper 41, pp. 4-5.

Paré's argument fails for a number of reasons.

First, Paré has not established that a person having ordinary skill in the art would necessarily understand "microwave oven" or "microwave applicator" as used in the Paré patents to be a "conventional microwave oven." Paré has not provided any evidence explaining how a person having ordinary skill in the microwave extraction art would understand the teachings of the Paré patents. More particularly Paré has not directed us to evidence showing that a person having ordinary skill in the art would understand " microwave applicator" and "microwave oven" as used in the Paré patents to describe a "conventional microwave oven." Paré's motion merely makes the unsupported argument that the Paré patents teach the use of a "conventional microwave oven." Argument of counsel cannot take the place of evidence in the record. Estee Lauder v. L'Oreal, S.A., 129 F.3d 588, 595, 44 USPQ2d 1610, 1615 (Fed. Cir. 1997); Knorr v. Pearson, 617 F.2d 1368, 1373,

213 USPQ 196, 200 (CCPA 1982); In re Langer, 503 F.2d 1380, 1395, 183 USPQ 288, 299 (CCPA 1974).

Secondly, Paré has not directed us to convincing evidence that a "microwave oven," or "microwave applicator" as used in the Paré patents or even "a conventional microwave oven," would necessarily be operated in a pulsed mode in carrying out the Paré microwave extractions. In order to prove inherency the alleged inherent feature must always and necessarily occur. Continental Can, 948 F.2d at 1268-69, 20 USPQ2d at 1749. In order to establish inherent description of the use of pulsed microwaves, Paré must establish that the necessary and only reasonable construction of the Paré patents is to generate microwaves in pulses. Kennecott, 835 F.2d at 1423, 5 USPQ2d at 1198.

Paré cites U.S. Patents 4,149,057 and 4,177,369 (P. Ex. 2007 and 2008), both issued to Fritts. The Fritts patents are purported to show that microwave ovens have the capability to operate in a pulsed mode. Paper 40, pp. 6-8. Those patents appear to be directed to household-type appliances. E.g., P. Ex. 2007, col. 1, ll. 27-32 and Fig. 1. Paré, however, has not directed us to any evidence which shows that the microwave ovens described in the Fritts patents are the type one of ordinary skill art in the microwave extraction art would use to perform the extractions taught in the Paré patents. In any event, assuming, without deciding, that a person of ordinary skill in the microwave extraction arts would employ the microwave ovens of the type described in the Fritts patents to carry out the processes described in the Paré patents, Paré has not demonstrated that those microwave ovens would necessarily be operated in a pulsed mode during the extraction process. While, the Fritts patents teach that the microwave ovens disclosed therein are capable of operating in the pulsed mode, they are also capable in operating in a full power mode. E.g. P. Ex 2007, col. 1, ll. 33-40. Thus, it may be possible to operate the microwave ovens described in the Fritts patents in a pulsed mode. However, the evidence does not show that a person having ordinary skill in the art would necessarily use them in a pulsed mode.

Paré also relies on a publication by Neas et al, (P. Ex. 2009) as supporting the argument that the microwave oven or applicator disclosed in the Paré patent would inherently provide microwaves in pulses. Paré directs us (Paper 40, pp. 7-8) to the portion of the Neas publication which states:

> In microwave systems used for sample preparation, the power output of the magnetron is controlled by "cycling" the magnetron to obtain an average power level.

P. Ex. 2009, p. 19.

The Neas publication is apparently Chapter 2 of a book titled "Introduction to Microwave Sample Preparation - Theory and Practice," published by the American Chemical Society. Chapter 2 is titled "Microwave Heating - Theoretical Concepts and Equipment Design." P. Ex. 2009, p. 7. The introduction of the paper states:

> This chapter discusses the theoretical concepts of dielectric loss, ionic conduction, dipole rotation and sample size as they relate to microwave heating for acid dissolutions. The chapter includes the design of microwave equipment and accessories to meet the heating requirements for acid dissolution. These microwave instruments protect the magnetron, prevent corrosion, and provide for uniform heating.

P. Ex. 2009, p. 7 (emphasis added). Paré has not provided any evidence or any argument on why one having ordinary skill in the art would understand the microwave oven or microwave applicator as used in the Paré patents to have the characteristics of a microwave heater particularly useful for acid dissolutions. The Neas publication, alone or considered along with the Fritts patents, does not establish that the microwave heaters in the Paré patents would necessarily be operated in a pulsed or cycled mode. While it might be possible to use the microwave sources disclosed in Neas and the Fritts patents, Paré has not proved that it is necessarily so. Inherency may not be based on probabilities or possibilities. Oelrich, 666 F.2d at 581, 212 USPQ at 326.

Even if the Paré patents inherently disclosed treatment with microwave pulses, Paré has not established that those pulses would necessarily result in intermittently reduced pressure during the exposure to microwaves. Paré has not directed us to evidence showing that the ideal gas equation predicts the behavior of the complex systems described, for example, in the Paré Example 2. Example 2 describes putting fresh sage into a sealed container system including a sorbent. The contents of the container were exposed to microwaves for 90 seconds to volatilize terpenoids present in the sage. The terpenoids were absorbed by the sorbent. P. Ex. 2002, col. 7, l. 66 - col. 8, l. 42. Thus, Paré Example 2 describes a container including both gases and solids and in which gas (the Volatiles terpenoids) are both added to the mixture by volatilization and deleted from the mixture

through the selective semi-permeable membrane. Paré has not presented evidence or argument showing that the ideal gas equation may be relied upon to adequately predict the behavior of such a system.

Paré also relies on Wennerstrum and Ganzler to suggest or teach the application of reduced pressure during the application of microwaves.

With respect to Ganzler, Paré does not argue that Ganzler expressly teaches the use of reduced pressure while microwaves are being applied. Rather, it is asserted that the references inherently disclose using reduced pressure. The argument supporting inherency is the same as relied upon with respect to the Paré patents –that Ganzler's description of repeated application of microwaves to a material in a closed container and the ideal gas equation indicate the intermittent application of reduced pressure. Our reasoning as to why the Paré patents do not inherently describe the use of reduced pressure during the application of microwaves applies with equal force to the Ganzler publication. Ganzler teaches a microwave extraction process in which samples of biological materials are ground, suspended in a solvent, sealed in screw-cap vials, and subject to repeated cycles of thirty seconds of microwave radiation and cooling to room temperature. The suspension was not allowed to boil during irradiation. The suspensions were then centrifuged and the liquid portion analyzed. As with the Paré patents, Paré has not presented arguments or evidence showing the ideal gas equation is suitable to predict the behavior of the gases in a complex system including gas, liquid and solvent described by Ganzler.

Paré also relies on Wennerstrum as teaching the intermittent application of reduced pressure limitation. Wennerstrum relates to processes and apparatus for microwave vacuum drying. The patent teaches a method including the steps of placing the product to be dried in a container, placing the container and product into a chamber, pulling a vacuum in the chamber and applying microwaves to the product until drying is completed. P. Ex. 2004, col. 13, ll. 11-38. The vacuum in the chamber is maintained at a constant reduced pressure using a dual valve or a diaphragm system. The valves are operated so as to consistently maintain the desired vacuum in the chamber. P. Ex. 2004, col. 7, ll. 42-68. Paré argues that the step of intermittently applying reduced pressure within the enclosure is inherently taught by Wennerstrum. Referring specifically of Column 7, lines 42-63 of Wennerstrum Paré specifically argues that

> [Wennerstrum] preferably operates at a constant pressure during microwave irradiation by operating the vacuum pump 40 continuously and opening and closing the small valve 98 as necessary throughout the drying operation[. Wennerstrum] must continuously apply additional vacuum to maintain constant pressure as temperature rises due to microwave energy (based on ideal gas equation); thus, applying reduced pressure to compensate for increases in pressure due to temperature increases . . . .

Paper 40, p. 14 (emphasis added).

We fail to see how the teaching of maintaining a constant reduced pressure in Wennerstrum's chamber necessarily describes the intermittent application of reduced pressure as required by Mengal's involved claims. Wennerstrum's goal is to keep the pressure constant. Paré has not directed us to any evidence relating to how a person having ordinary skill in the microwave extraction art would understand the Wennerstrum patent. Paré has not provided any evidence which supports finding that a person having ordinary skill in the art would understand Wennerstrum to teach the intermittent application of reduced pressure. Again all we are offered is attorney argument. The intermittent application of reduced pressure has not been proved to be inherently disclosed in Wennerstrum.

b. Obviousness of Intermittent Application of Reduced Pressure

Paré asserts that Mengal's involved claims are obvious over the combination of each of the Paré patents with Ganzler and Wennerstrum. Assuming that Ganzler and Wennerstrum inherently teach intermittently applying reduced pressure, Paré has not explained why the person of ordinary skill in the art would have recognized and appreciated this step. The fact that a feature may be inherent does not mean it would have been obvious. Inherency and obviousness are distinct concepts. Kloster Speedsteel AB v. Crucible Inc., 793 F.2d 1565, 1576, 230 USPQ 81, 88 (Fed. Cir. 1986); W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1555, 220 USPQ 303, 314 (Fed. Cir. 1983) (citing In re Spormann, 363 F.2d 444, 448, 150 USPQ 449, 452 (1966)), cert. denied, 105 S. Ct. 172 (1984). That which may be inherent is not necessarily known. Spormann, 363 F.2d at 448, 150 USPQ at 452. Obviousness cannot be predicated on what is unknown. Spormann, id. Paré has not directed us to any evidence establishing that a person having ordinary skill in the art would have known that Ganzler and Wennerstrum intermittently apply reduced pressure during the exposure to microwaves.

Additionally, assuming Ganzler and Wennerstrum evidence that it was known to intermittently apply reduced pressure during the microwave treatment, Paré has not explained the motivation for combining the teachings of Ganzler and Wennerstrum with the teachings of the Paré patents. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995); In re Bond, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990) (quoting Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 140, 231 USPQ 644, 647 (Fed. Cir. 1986)). While Paré argues that "these references teach that such procedures result in significantly improved process for release of volatiles" (Paper 40 p. 21), our reading of the references indicates that the specified benefits (Ganzler, p. 305, 1st full ¶; Paré 426, col. 8, ll. 34-42; Paré 947, col. 8, ll. 32-38) are taught to be attributable to the use of microwaves not to the use of intermittently applied reduced pressure. Paré has failed to direct us to evidence of sufficient character and weight to establish motivation to modify the process and apparatus described in the Paré patents. "The absence of such a suggestion to combine is dispositive in an obviousness determination." Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997); SmithKline Diagnostics, Inc. v. Helena Lab. Corp., 859 F.2d 878, 886-87, 8 USPQ2d 1468, 1475 (Fed. Cir. 1988).

c. Obviousness of Using an Azeotropic Mixture

Paré claims 20, 21 and 23-32 include an additional difference not disclosed by the Paré patents: "conveying the natural product and the water vapor coming from the biological material as an azeotropic mixture; and separating the natural product from the azeotropic mixture." Paré has not directed us to any evidence relating to this limitation. Paré argues:

> One of ordinary skill in the art would realize that the formation of an azeotropic mixture will depend on the inherent nature or ability of the specific natural product released to form an azeotropic mixture with water . . . .
>
> One of ordinary skill in the art would consider this as part of a standard separation method for azeotropic mixtures; once the natural product is collected, one of ordinary skill in the art would know of a number of

techniques to separate the product from the mixture, including azeotropic mixtures.

Paper 40, p.14, p. 18, p. 19. Paré has not provided any evidence supporting these assertions. Paré's attorney argument can not take the place of evidence lacking in the record. Estee Lauder, 129 F.3d at 595, 44 USPQ2d at 1615. The burden of proof is on the moving party. 37 CFR § 1.637(a).

Additionally, Paré has not proved or explained the motivation to modify the teachings of the Paré patents by incorporating the use of an azeotropic mixture as part of the extraction technique taught by the Paré patents. The absence of motivation is dispositive of the obviousness question. Gambro Lundia, 110 F.3d at 1579, 42 USPQ2d at 1383.

d. Obviousness of the Subject Matter of Mengal's Involved Claims

Paré's Preliminary Motion Under Rule 633(a) (Paper 40) fails to make out a prima facie case of unpatentability of Mengal's involved claims. The motion is therefore denied. Since Paré failed to make out a prima facie case for relief, it was unnecessary for us to consider Mengal's opposition (Paper 45) or Paré's Reply (Paper 49).

B. Paré's Preliminary Motions for Benefit

1. Findings of Fact

F 107. Paré filed three preliminary motions seeking the benefit of the filing dates of the three earlier applications Papers 41-43.

F 108. Paré's motions for benefit assert, respectively, that U.S. Applications 08/327,638 and 08/012,475 and the earlier Canadian application constitute constructive reductions to practice of the subject matter of Paré's Claims 1 and 10, which are alternatives of the count. Paper 43, pp. 2-4; Paper 42, pp. 2-4; Paper 41, pp. 2-6.

a. The Proposed Benefit Applications

F 109. Application 08/653,553, for which Paré was accorded benefit, is said to be a continuation-in-part of Application 08/327,638, filed 24 October 1994.

F 110. Application 08/327,638, is said to be a continuation-in-part of Application 08/012,475, filed 2 February 1993.

F 111. Application 08/327,638 became the Paré 947 patent.

F 112. Application 08/012,475 became the Paré 426 patent.

F 113. The written descriptions of Paré 947 and Paré 426 appear to be essentially identical to the written descriptions of Applications 08/327,638 and 08/012,475.

F 114. The Canadian application is said to have been filed 10 February 1992.[3]

b. Paré's Arguments for Benefit

F 115. Paré's Claims 1 and 10 each include a limitation requiring the cyclical and intermittent use of reduced pressure "during the step for the application of microwaves" and "during the microwave treatment," respectively. Paper 6, attachment pp. 1 and 2 (emphasis added).

F 116. None of the proposed benefit applications expressly disclose these limitations.

F 117. Paré asserts that these limitations are inherent in the disclosures of the Paré benefit applications. Paper 43, pp. 3 and 4; Paper 42, pp. 3 and 4; Paper 41, pp. 3 and 4.

F 118. In particular, Paré argues that the limitation "cyclically intermittently applying reduced pressure in the enclosure during the step for the application of microwaves" (Paré Claim 1) and "cyclically intermittently applying reduced pressure during the microwave treatment" (Paré Claim 10) are inherently disclosed in each of the proposed benefit applications. Paper 43, pp. 3 and 4; Paper 42, pp. 3 and 4; Paper 41, pp. 3 and 4.

F 119. Paré's arguments for inherency are essentially the same as made with respect to Paré's preliminary motion alleging Mengal's claims are unpatentable.

F 120. The findings, above, relating to the Paré patents and the alleged inherent disclosure of intermittent reduced pressure are also applicable to Paré's motions for benefit. See ¶¶ F 77 - F 95, above.

F 121. In particular, Paré argues that one having ordinary skill in the microwave extraction art would recognize that the Paré applications to use a conventional microwave oven; that a conventional microwave oven applies microwaves in pulses; and that the ideal gas equation

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[3] Paré has submitted a document said to be a copy of the Canadian application. P. Ex. 2010. This document has not been authenticated and is not admissible into evidence. 37 CFR 1.671; Fed R. Evid. 901. The document is not self authenticating. Fed. R. Evid. 902. Nor is the document identical in content to Canadian Patent 2,060,913 (document available through the Canadian Intellectual Property Office at http://patents1.ic.gc.ca/details?patent_number=2060931&language=EN). For the reasons stated below, Paré's preliminary motion for benefit of the Canadian application (Paper 41) is denied for failure of proof. It is noted, however, that the content of P.Ex 2010 appears to be substantially identical to U.S. Application 08/012,475. Thus, the comments we make herein with respect to Application 08/012,475 would also apply to the P.Ex. 2010.

predicts that the pressure in the sealed containers described in the applications would rise and fall with the microwave pulses resulting in the cyclical and intermittent application of reduced pressure. Paper 41, pp. 4-5.

F 122. Each benefit motion identically refers to Example 2 of each application for inherent support for the cyclical and intermittent application of reduced pressure as follows:

> Inherently disclosed in Example 2 - conventional microwave ovens supply microwave energy in pulses such that temperature rises during application of microwave energy and then falls during absence of microwave energy; based on ideal gas law, pressure must rise and fall with changes in temperature . . . .

Paper 43, pp. 3 and 4; Paper 42, pp. 3 and 4; Paper 41, pp. 3 and 4.

F 123. Example 2 in each application appear to be identical and a duplicate of Example 2 in the Paré patents reproduced in ¶ F35, above.

F 124. Paré Example 2 does not inherently disclose the use of vacuum or reduced pressure as part of the extraction process. See ¶¶ F 77 - F 95, above.

F 125. Each motion also relies on at least one additional portion of the potential benefit applications in asserting inherency of intermittently applying reduced pressure. Paper 43, pp. 3 and 4; Paper 42, pp. 3 and 4; Paper 41, pp. 3 and 4.

F 126. Using language that is identical except for identification of the specific column or page, each motion argues that the applications disclose a process requiring multiple applications of microwaves and that the ideal gas law predicts a rise and fall in temperature and pressure in the treatment container:

> [citation deleted[4]]- matrix samples are subjected to two microwave treatments (first and second "exposure steps") within a closed container; during period between microwave treatment, temperature will drop and, based on ideal gas law, pressure must also drop . . . .

Paper 43, pp. 3 and 4; Paper 42, pp. 3 and 4; Paper 41, pp. 3 and 4.

F 127. Paré's Third Preliminary Motion under 37 C FR § 1.633(f) (Paper 43) relies on a additional disclosure which is apparently only present in U.S. Application 08/327,638:

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[4] The motions cite to the Paré patents rather than to the Paré applications. Paper 43 refers to col. 3, line 57, through col. 4, line 7 of Paré 947. Paper 42 refers to col. 4, line 66, through col. 5, line 19 of Paré 426. Paper 41 refers to page 3, lines 7-20 of P.Ex. 2010.

Examples 5 and 6 (mislabeled as Example 4 at col. 11, line 58) - provides cycles of microwave irradiation and spinning (15 sec irradiation, 5 sec spinning, 15 sec irradiation, 5 sec spinning) (col. 10, lines 13-20; col. 12, lines 19-25); during spinning periods (i.e., no irradiation), temperature will drop and, based on ideal gas law, pressure must also drop.

Paper 43, pp. 3 and 4.

F 128. Paré has not provided any evidence explaining the content of the Paré applications from the perspective of a person having ordinary skill in the microwave extraction art.

F 129. Paré has not provided any evidence showing that the ideal gas equation may be relied upon to predict the behavior of the gases subject to multiple exposure to microwaves described in the Paré applications.

F 130. The Paré applications have not been shown to inherently describe applying vacuum or reduced pressure during microwave treatment.

F 131. Paré has not proved that U.S. Applications 08/327,638 and 08/012,475 inherently describe a process which includes cyclically and intermittently applying reduced pressure during the microwave treatment.

F 132. Paré's involved application is not entitled to the benefit of the filing dates of U.S. Applications 08/327,638 and 08/012,475.

2. Analysis

Paré moves for the benefit of the filing date of U.S. Applications 08/327,638 and 08/012,475 and of a Canadian application. Papers 41-43. We deny Paré's preliminary motions.

None of the proposed benefit applications expressly disclose the cyclical and intermittent application of reduced pressure. Paré asserts that the limitation "cyclically intermittently applying reduced pressure within said enclosure during said step for the application of microwaves" in Paré Claim 1 and the limitation "cyclically intermittently applying reduced pressure during the microwave treatment" in Paré Claim 10 are inherently described in the disclosures of the potential benefit applications.

a. The Benefit of the Filing Date of the Canadian application

Paré's preliminary motion for benefit of the filing date of the Canadian application (Paper 43) relies on P. Ex. 2010 which purports to be a copy of a Canadian application. However, the

document has not been authenticated and is therefore inadmissible. See Note 3, above. The inadmissibility of the P. Ex. 2010 leaves Paré without any evidence supporting entitlement to the filing date of the Canadian application. The moving party bears the burden of proof. 37 CFR § 1.637(a). Paré preliminary motion for the benefit of the Canadian application is denied.

b. The Benefit of the Filing Date of Paré's U.S. Applications

1) Benefit for the Purposes of Priority in an Interference

In order to be entitled to the benefit of the filing date of an earlier application, the earlier application must be a constructive reduction to practice of the subject matter of the count. 37 CFR § 1.637(f)(3). The desired benefit application must describe the subject matter of the count and provide an enabling disclosure of it. Hyatt v. Boone, 146 F.3d 1348, 1352, 47 USPQ2d 1128, 1130 (Fed. Cir. 1998); Fiers v. Revel, 984 F.2d 1164, 1170, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). However, these requirements need to be met only with respect to a single embodiment within the scope of the count. Weil v. Fritz, 572 F.2d 856, 865-66 n.16, 196 USPQ 600, 608 n.16 (CCPA 1978); Hunt v. Treppschuh, 523 F.2d 1386, 1389, 187 USPQ 426, 429 (CCPA 1975). As noted in Hunt, 523 F.2d at 1389, 187 USPQ at 429, a constructive reduction to practice requires that "§ 112, first paragraph requirements need only be met for an embodiment within the count" 523 F.2d at 1389, 187 USPQ at 429 (emphasis added). See also, Utter v. Hiraga, 845 F.2d 993, 998, 6 USPQ2d 1709, 1714 (Fed. Cir. 1988) (benefit of the filing date of an earlier application properly accorded where the earlier application described a species encompassed by the generic count) and Weil, 572 F.2d at 865 n.16, 196 USPQ at 608 n.16 (as Hunt explains, "the §112, first paragraph requirements need only be met for an embodiment within the count").

2) The Benefit of Paré's U.S. Applications

The count is the disjunction of Paré Claims 1 and 10 and Mengal's Claims 1, 14, 20 and 29. Thus, to prove a constructive reduction to practice, Paré must show that each earlier application describes an embodiment within the scope of at least one of these claims. Paré limits the argument to the count alternatives of Paré Claims 1 and 10. Accordingly, we limit our discussion to those claims.

Paré does not argue that an embodiment within the count is expressly disclosed by each benefit application. Rather, it is asserted that certain of the limitations of Claims 1 and 10 are

inherently described in the proposed benefit applications. Paré's arguments on inherency essentially parallel those made in Paré's motion for judgment against Mengal's claims. Paré's motion fails to set out a prima facie case for substantially the same reasons.

With respect of Example 2 of the Paré application, Paré employs the following logic: (1) a person having ordinary skill in the art would recognize that the "microwave oven" and the "microwave applicator" mentioned in Applications 08/327,638 and 08/012,475 was a "conventional microwave oven"; (2) conventional microwave ovens supply microwave energy in pulses, i.e., in on- and off-cycles during treatment; (3) the pulses will result in heating of the sample and the surrounding gas during the on-cycle and the sample and the surrounding gas will cool during the off-cycle; (4) the ideal gas law predicts that during the on-cycle the gas pressure will rise due to the heating and during the off-cycle the pressure will fall as the gas cools; (5) therefore, the contents of the container are exposed to cyclically and intermittently applied reduced pressure during the application of microwave energy. Paper 41, pp. 4-5.

As with the Paré patents, Paré has not provided any evidence on how a person having ordinary skill in the microwave extraction art would understand the Paré applications. Thus, Paré has not established that a person having ordinary skill in the art would necessarily understand "microwave oven" or "microwave applicator" to be a "conventional microwave oven." Paré has also not established that "a conventional microwave oven," a "microwave oven," or a "microwave applicator" would necessarily operate in a pulsed mode. Even if the potential benefit applications inherently disclosed treatment with microwave pulses, Paré has not established that those pulses would necessarily result in cyclically intermittently reduced pressure during the exposure to microwaves as required by Paré's Claims 1 and 10 because Paré has not established that the ideal gas equation predicts the behavior of gases in the systems and conditions described in the Paré applications.

With respect to the other portions of the Paré applications disclosing the repeated microwave treatments, this argument also depends on the applicability of the ideal gas equation. Paré has not demonstrated that the equation may be used to describe the behavior of the systems of the type described in the applications. Thus, both applications include the description of a system in which a solid or liquid matrix including volatilizable material is placed in a container sealed with a

selective permeable membrane that allows the selective passage at least one of the volatilizable materials. P. Ex. 2001, col. 3, ll. 57-67; P. Ex. 2002, col. 3, ll. 50-53. Paré has not presented evidence that the ideal gas equation is applicable to a system which includes solid and liquid phases in addition to a mixture of gases and in which gas is both generated and removed from the system. The same is true for the additional disclosure only present in Application 08/327,638. P. Ex. 2001, col. 11, l. 59 - col. 12, l. 30. The systems there disclosed include both solid (soil), liquid (methanol) and multiple gases as well as changes in state due to the application of microwaves. Paré has failed to prove that the ideal gas equation describes the behavior of such a system. Thus, Paré has failed to prove that the processes described in the Paré applications necessarily will result in the cyclical and intermittent application of reduced pressure during the microwave treatment.

Paré's preliminary motions for benefit (Paper 41-43) fail to make out a prima facie case of entitlement for benefit and are, therefore denied. Since Paré's benefit motions did not make out a prima facie case, it was unnecessary to and we have not, considered Mengal's oppositions or Paré's replies to the oppositions.

FINAL JUDGMENT

Paré is the junior party in this interference. Paré's preliminary statement relies for priority on the benefit of the filing dates of Applications 08/327,638 and 08/012,475 and the Canadian Application. Paré's motions for benefit of those applications were denied. Thus, Paré can not prevail on priority and it is appropriate to enter judgment on priority at this time. Since all of Paré's involved claims are unpatentable under 35 U.S.C. § 102(g), it is unnecessary to consider Mengal's preliminary motions.

ORDER

It is

ORDERED that judgment on priority as to Count 1, the only count in this interference, is awarded against junior party J. R. JOCELYN Paré;

FURTHER ORDERED that junior party, J. R. JOCELYN Paré, is not entitled to a patent containing Claims 1-15 of Patent 5,884,417 which correspond to Count 1;

FURTHER ORDERED that if there is a settlement agreement and it has not already been filed, attention is directed to 35 U.S.C. § 135(c) and 37 CFR § 1.661; and

FURTHER ORDERED that a copy of this decision be given appropriate paper numbers and entered into the file records of Patent 5,884,417 and Application 09/102,788.

RICHARD E. SCHAFER
Administrative Patent Judge

JAMESON LEE
Administrative Patent Judge

CAROL A. SPIEGEL
Administrative Patent Judge

BOARD OF PATENT APPEALS AND INTERFERENCES

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INTERFERENCE DIGEST

Interference No. 104,692 Paper No. 14

Name: Philippe Mengal et al.

Serial No.: 09/102,788 Patent No.

Title: METHOD AND PLANT FOR SOLVENT-FREE MICROWAVE EXTRACTION OF NATURAL PRODUCTS

Filed: 06/23/98

Interference with Pare

DECISION ON MOTIONS

Administrative Patent Judge,_____ Dated,_____

_____

_____

_____

FINAL DECISION

Board of Patent Appeals and Interferences, favorable Dated, 8/21/03

_____

Court,_____ Dated,_____

REMARKS

_____

_____

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This should be placed in each application or patent involved in interference in addition to the interference letters.